

In the Claims

For the convenience of the Examiner, all pending claims are set forth below, whether or not an amendment is made. Please amend the claims as follows:

1. (Currently Amended) A method for estimating interconnect delay, the method comprising:

- determining an interconnect inductance of an interconnect;
- determining a transfer function using the interconnect inductance;
- determining at least two poles of the transfer function;
- estimating an interconnect response using the two poles, the interconnect response describing a reaction of the interconnect to an applied signal; and
- estimating an interconnect delay from the interconnect response, the interconnect delay describing a delay of the interconnect.

2. (Original) The method of Claim 1, further comprising:
determining a damping case from the two poles; and
estimating the interconnect delay according to the damping case.

3. (Original) The method of Claim 1, further comprising:
determining an overdamped case from the two poles; and
estimating the interconnect delay using one pole.

4. (Original) The method of Claim 1, further comprising:
determining an underdamped case from the two poles; and
estimating the interconnect delay by:
 computing a first delay using an Elmore delay; and
 computing a second delay using the first delay as a value for a time variable.

5. (Original) The method of Claim 1, further comprising:
determining an underdamped case from the two poles; and
estimating the interconnect delay by repeating the following:
 computing a current delay; and
 computing a next delay using the current delay as a value for a time variable,
until a difference between the current delay and the next delay is within a predetermined range.
6. (Original) The method of Claim 1, further comprising:
determining a critically damped case from the two poles; and
estimating the interconnect delay by:
 computing a first delay using an Elmore delay; and
 computing a second delay using the first delay as a value for a time variable.
7. (Original) The method of Claim 1, further comprising:
determining a critically damped case from the two poles; and
estimating the interconnect delay by repeating the following:
 computing a current delay; and
 computing a next delay using the current delay as a value for a time variable,
until a difference between the current delay and the next delay is within a predetermined range.

8. (Currently Amended) A system for estimating interconnect delay, the system comprising:

a memory operable to store information about an interconnect; and

a processor coupled to the memory operable to:

determine an interconnect inductance of the interconnect from the information;

determine a transfer function using the interconnect inductance;

determine at least two poles of the transfer function;

estimate an interconnect response using the two poles, the interconnect response describing a reaction of the interconnect to an applied signal; and

estimate an interconnect delay from the interconnect response, the interconnect delay describing a delay of the interconnect.

9. (Original) The system of Claim 8, wherein the processor is operable to:

determine a damping case from the two poles; and

estimate the interconnect delay according to the damping case.

10. (Original) The system of Claim 8, wherein the processor is operable to:

determine an overdamped case from the two poles; and

estimate the interconnect delay from one pole.

11. (Original) The system of Claim 8, wherein the processor is operable to:

determine an underdamped case from the two poles; and

estimate the interconnect delay by:

computing a first delay using an Elmore delay; and

computing a second delay using the first delay as a value for a time variable.

12. (Original) The system of Claim 8, wherein the processor is operable to:
determine an underdamped case from the two poles; and
estimate the interconnect delay by repeating the following:
 computing a current delay; and
 computing a next delay using the current delay as a value for a time variable,
until a difference between the current delay and the next delay is within a predetermined range.
13. (Original) The system of Claim 8, wherein the processor is operable to:
determine a critically damped case from the two poles; and
estimate the interconnect delay by:
 computing a first delay using an Elmore delay; and
 computing a second delay using the first delay as a value for a time variable.
14. (Original) The system of Claim 8, wherein the processor is operable to:
determine a critically damped case from the two poles; and
estimate the interconnect delay by repeating the following:
 computing a current delay; and
 computing a next delay using the current delay as a value for a time variable,
until a difference between the current delay and the next delay is within a predetermined range.

15. (Currently Amended) Logic for estimating interconnect delay encoded on media, the logic embodied in a medium and operable to:

determine an interconnect inductance of an interconnect;

determine a transfer function using the interconnect inductance;

determine at least two poles of the transfer function;

estimate an interconnect response using the two poles, the interconnect response describing a reaction of the interconnect to an applied signal; and

estimate an interconnect delay from the interconnect response, the interconnect delay describing a delay of the interconnect.

16. (Original) The logic of Claim 15, the logic operable to:

determine a damping case from the two poles; and

estimate the interconnect delay according to the damping case.

17. (Original) The logic of Claim 15, the logic operable to:

determine an overdamped case from the two poles; and

estimate the interconnect delay using one pole.

18. (Original) The logic of Claim 15, the logic operable to:

determine an underdamped case from the two poles; and

estimate the interconnect delay by:

computing a first delay using an Elmore delay; and

computing a second delay using the first delay as a value for a time variable.

19. (Original) The logic of Claim 15, the logic operable to:

determine an underdamped case from the two poles; and

estimate the interconnect delay by repeating the following:

computing a current delay; and

computing a next delay using the current delay as a value for a time variable, until a difference between the current delay and the next delay is within a predetermined range.

20. (Original) The logic of Claim 15, the logic operable to:
determine a critically damped case from the two poles; and
estimate the interconnect delay by:

computing a first delay using an Elmore delay; and
computing a second delay using the first delay as a value for a time variable.

21. (Original) The logic of Claim 15, the logic operable to:
determine a critically damped case from the two poles; and
estimate the interconnect delay by repeating the following:

computing a current delay; and
computing a next delay using the current delay as a value for a time variable,
until a difference between the current delay and the next delay is within a predetermined
range.

22. (Currently Amended) A system for estimating interconnect delay, the system comprising:

an inductance module operable to determine an interconnect inductance of an interconnect;

a transfer function module operable to determine a transfer function using the interconnect inductance;

a processor operable to:

determine at least two poles of the transfer function;

determine a damping case from the two poles, the damping case comprising an overdamped case, an underdamped case, and a critically damped case;

a response module operable to estimate an interconnect response using the two poles, the interconnect response describing a reaction of the interconnect to an applied signal; and

a delay module operable to:

estimate the interconnect delay from one pole, if the damping case is the overdamped case, the interconnect delay describing a delay of the interconnect;

estimate the interconnect delay by:

computing a first delay using an Elmore delay; and

computing a second delay using the first delay as a value for a time variable, if the damping case is the underdamped case or the critically damped case.